

IN THE CLAIMS:

Claim 1 (Previously Presented) A medical implant having a head with a pair of spaced arms and an implant closure sized to be operably threadedly received between said arms; said closure having a threadform thereon that is sized and shaped to be threadedly received in a mating threadform on said arms; said closure has a direction of advancement along an axis of rotation relative to said head; said threadform comprising:

- a) a leading surface that has an inner edge and an outer edge;
- b) a trailing surface that has an inner edge and an outer edge; and wherein
- c) intersections of a plane passing through said axis of rotation with both said leading surface and said trailing surface slope rearwardly relative to the direction of advancement from the respective inner edges to the outer edges thereof.

Claim 2 (Previously Presented) The implant according to Claim 1

wherein:

- a) the intersection of said trailing surface with a plane passing through said axis of rotation is at a first angle of from about  $1^{\circ}$  to about  $45^{\circ}$  relative to a line perpendicular to said axis of rotation.

Claim 3 (Previously Presented) The implant according to Claim 2

wherein:

- a) said first angle is between about  $5^{\circ}$  and  $20^{\circ}$ .

Claim 4 (Previously Presented) The implant according to Claim 2

wherein:

- a) said first angle is between about  $7^{\circ}$  and  $15^{\circ}$ .

Claim 5 (Previously Presented) The implant according to claim 2

wherein:

- a) the intersection of said leading surface with a plane passing through said axis of rotation is at a second angle of from about  $30^{\circ}$  to about  $75^{\circ}$  relative to a line perpendicular to said axis of rotation.

Claim 6 (Previously Presented) The implant according to Claim 2  
wherein:

- a) said second angle is in the range from 40° to 50°.

Claim 7 (Previously Presented) The implant according to Claim 1  
wherein:

- a) said trailing and leading surfaces are  
nonparallel.

Claim 8 (Canceled)

Claim 9 (Currently Amended) The ~~combination~~ closure according to  
Claim 50 wherein:

- a) said threadform is helically wound about said  
cylindrical shaped body.

Claim 10 (Currently Amended) The ~~combination~~ closure according to  
Claim 9 wherein:

- a) said threadform is continuous.

Claim 11 (Currently Amended) The ~~combination~~ closure according to Claim 9 wherein:

- a) said threadform is in a helical pattern, but is discontinuous.

Claim 12 (Currently Amended) The ~~combination~~ closure according to Claim 50 further including:

- a) the second implant having a receiving thread on an inner surface thereof; said receiving thread being sized and shaped to matingly and threadably receive said threadform.

Claim 13 (Previously Presented) A medical device comprising:

- a) a first implant having a head with a channel sized and shaped to receive a rod member and a pair of spaced arms on opposite sides of said channel;
- b) a second closure implant for closing between said arms; said closure implant having an axis of rotation and a thread on an outer surface thereof; said thread being in a helical pattern on said closure implant and having a leading surface and a trailing surface; said leading surface having

inner and outer edges and said trailing surface having inner and outer edges; intersections of both said leading surface and said trailing surface with a plane passing through said axis of rotation slope from respective inner to outer edges rearwardly with respect to a direction of advancement of said closure implant in closing said first implant; and

- c) each of said arms include a threadform on inner facing surfaces thereof sized and shaped to matingly and threadedly receive the thread of said closure implant.

Claim 14 (Original) The device of Claim 13 wherein:

- a) the inner and outer edges of both said leading surface and said trailing surfaces are each spaced from the axis of rotation at substantially the same radius over substantially the entire length of the thread.

Claim 15 (Original) The device of Claim 13 wherein:

- a) said inner edges of both said leading and trailing surfaces are substantially spaced and said outer edges of both said leading and trailing surfaces are in close proximity to each other throughout the length of the thread such that the thread is generally triangular in cross-section.

Claim 16 (Original) The device according to Claim 15 wherein:

- a) said cross-section has the general shape of an obtuse triangle.

Claim 17 (Previously Presented) In a medical implant having a head with a pair of spaced upright arms and a closure operably located between the arms, a thread positioned on the closure and being sized and shaped to be threadedly received in a mating thread located on the pair of upright arms; said thread having an axis of rotation with a leading surface and a trailing surface relative to advancement along the axis of rotation; the improvement comprising:

- a) said trailing surface having an inner and an outer edge; said trailing surface sloping rearwardly

from the inner edge to the outer edge thereof; and said inner edge having a generally constant radius over an entire length of said thread, such that, as said closure is advanced and applies force on a bottom side thereof, said thread resists splaying of said arms.

Claim 18 (Previously Presented) In a medical implant sized and shaped for closing between a pair of arms of a head of a bone screw and having a lower surface adapted to engage and apply pressure to a rod received in the head; said implant further having a cylindrical shaped outer surface with a thread wound in a helical pattern about said outer surface and wherein said thread has a leading surface and a trailing surface relative to advancement of the implant along an axis of rotation; the improvement comprising:

- a) said trailing surface having an inner and an outer edge; any intersection of said trailing surface with a plane passing through the axis of rotation slopes rearwardly from an inner radius to an outer radius of said trailing surface over substantially

the entire length of said trailing surface.

Claim 19 (Previously Presented) In a medical implant having a head with a pair of spaced arms and a closure for positioning between and closing between the arms, the closure having a thread located thereon that is operably received in a mating thread located on said spaced arms; said thread having a leading surface and a trailing surface relative to advancement about an axis of rotation; the improvement comprising:

- a) both said leading and trailing surfaces having respective inner and outer edges; said trailing surface sloping rearwardly from the inner edge to the outer edge thereof; said trailing surface and leading surface inner edges being spaced and said trailing surface and leading surface outer edges being in close proximity to one another, such that said thread is generally triangular in cross-section.



Claim 20 (Previously Presented) The implant according to Claim 19 wherein:

- a) said cross-section is generally in the shape of an obtuse triangle.

Claim 21 (Previously Presented) In a medical implant having a cylindrical shaped outer surface with a thread helically wound about said outer surface and wherein said implant is sized and shaped to be threadedly received between a pair of arms of a bone screw head and has a bottom surface adapted to abut against a rod received in said head; said thread having a leading surface and a trailing surface relative to advancement of the implant along an axis of rotation and further wherein both said trailing surface and said leading surface have respective inner and outer edges; the improvement comprising:

- a) said leading and trailing surfaces both sloping rearwardly from respective inner to outer edges thereof; said trailing surface and leading surface inner edges being spaced and said trailing surface and leading surface outer edges being in close proximity to each other over substantially the

entire length of the thread such that the thread has a substantially triangular shaped cross section.

Claim 22 (Previously Presented) In an orthopedic medical implant having a head with a pair of spaced arms and including a closure for operably closing between the arms, the closure having a thread thereon and the arms having a mating thread; said thread having a leading surface and a trailing surface relative to advancement about an axis of rotation; the improvement comprising wherein:

- a) both of the intersections of said leading surface and said trailing surface with a plane passing through the axis of rotation slope rearwardly from a radially inner edge to outer edge thereof; and
- b) a first angle between the leading surface intersection and a line perpendicular to the axis of rotation is substantially greater than a second angle between the trailing surface intersection and a line perpendicular to the axis of rotation.

Claim 23 (Previously Presented) The implant according to Claim 22 wherein:

- a) said second angle is between about 1° and 45°.

Claim 24 (Previously Presented) The implant according to Claim 23 wherein:

- a) said first angle is greater than 30°.

Claim 25 (Previously Presented) The implant according to Claim 22 wherein:

- a) said first angle is in the range from about 30° to 45° and said second angle is in the range from about 5° to 20°.

Claim 26 (Previously Presented) In a medical implant having a head with a pair of spaced arms and including a closure for closing between said arms; said closure having thereon a thread sized and shaped to be threadedly received in a mating thread on said arms; said thread having a leading surface and a trailing surface relative to advancement about an axis of rotation; the improvement comprising:

- a) said leading surface and said trailing surface

being non-parallel; and

- b) an intersection of a plane with said trailing surface slopes rearwardly from an inner edge to an outer edge of said trailing surface.

Claim 27 (Canceled)

Claim 28 (Canceled)

Claim 29 (Canceled)

Claim 30 (Canceled)

Claim 31 (Canceled)

Claim 32 (Canceled)

Claim 33 (Canceled)

Claim 34 (Canceled)

Claim 35 (Canceled)

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Claim 36 (Canceled)

Claim 37 (Canceled)

Claim 38 (Canceled)

Claim 39 (Canceled)

Claim 40 (Canceled)

Claim 41 (Canceled)

Claim 42 (Canceled)

Claim 43 (Canceled)

Claim 44 (Canceled)

Claim 45 (Canceled)

Claim 46 (Canceled)

Claim 47 (Canceled)

Claim 48 (Canceled)

Claim 49 (Canceled)

Claim 50 (Previously Presented) A medical implant closure having a threadform; said closure being adapted to be threadedly receivable in a second medical implant bone screw head between spaced arms wherein said closure has a direction of advancement along an axis of rotation relative to said head; said threadform comprising:

- a) a leading surface that has an inner edge and an outer edge;
- b) a trailing surface that has an inner edge and an outer edge; and wherein
- c) intersections of a plane passing through said axis of rotation with both said leading surface and said trailing surface slope rearwardly relative to the direction of advancement from the respective inner edges to the outer edges thereof.

Claim 51 (Previously Presented) In a method of resisting arm splaying in a medical implant having a head with a pair of spaced arms that operably receive a rod and a closure for threadedly closing between the arms; the method comprising the steps of:

- a) providing a reverse angle thread on said closure and a mating thread on said arms with said reverse angle thread aligned to urge said arms inwardly toward said closure as said closure is tightened with respect to said head; and
- b) inserting said closure between said arms and rotating said closure so as to threadedly advance said closure relative to said arms until said closure is set.